Basic Principles of Energy Utility Pricing

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Principles of Rate Regulation

- Fairness to both the regulated utility and the ratepayers.
- Avoidance of unjust or undue discrimination between rate classes or customers.

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Objectives in Setting Rates

- Protect the ratepayer's interest by assuring safe, reliable and reasonably priced services.
- Fairly apportioning cost among customers.
- Protect the shareholder's interest by allowing the utility a reasonable opportunity to earn a fair rate of return on its investment.

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The Rate Case Process

- Energy utility files an application for a rate change.
- Public hearings are scheduled and notices of hearing are published.
- Commission staff conducts audit.
- All parties present evidence at public administrative hearings.
- ALJ issues proposal for decision.
- Commission issues order.
- Orders may be appealed.

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Three Basic Steps to Rate Base Regulation

- Determine Total Revenue Requirements.
- Allocate Revenue Requirements to Various Classes of Service.
- Determine Rate Structure (Prices) for Each Customer Rate Class - Design Rates.

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Determining Revenue Requirements

- Revenue Requirement is defined as:
  - That level of revenues sufficient to cover a utility's cost of service including a return on its investment.
- The formula to determine Revenue Requirements is:
  - $R = (V-D)r+E$

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Formula: R= (V-D) r + E

- R= Revenue Requirements
- V= Value of Rate Base
  - (Plant in Service plus Working Capital)
- D= Accumulated Depreciation
- r = Rate of Return on investment
- E= Operating Expenses

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Other Considerations

- Uniform System of Accounts
  - Functional accounting system comprised of specific accounts in which all transactions are recorded at cost.
- Rate Case Filing Requirements
  - Test Year
  - Rate Case Audit

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Allocation of Revenue Requirements to Various Classes of Service

- Group customers into rate classes
  - Rate classifications should produce homogeneous groups based upon characteristics of each group.
    - Residential
    - Commercial – Secondary and Primary
    - Industrial – Secondary and Primary
    - Retail Open Access - ROA

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- Cost of Service Study – to fairly allocate costs to the rate classes based upon cost causation and cost benefit.
  - Functionalize
  - Classify
  - Allocate

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- Cost are separated by functions:
  - Production
  - Storage
  - Transmission
  - Distribution
  - Customer Accounts and Customer Service
  - Administrative and General

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- Functionalized costs are classified:
  - Capacity –
    - Costs associated with meeting system throughput and demand requirements.
  - Energy -
    - Costs that vary with the volume of energy sold.
  - Customer –
    - Costs resulting from having a customer connected to the utility.

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- Allocation factors are developed that reflect the nature of the classified and functionalized costs.
  - Factors applied to the utility's costs to allocate them to each rate class.
  - Some costs are directly assigned.

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Design Rates to Provide for Recovery of Revenue Requirements

- General Attributes of a Sound Rate Structure:
  - Effectiveness in yielding total revenue requirements.
  - Revenue and rate stability and predictability.
  - Fairness and avoidance of undue discrimination among the different rate classes.
  - Political and public policy issues e.g. subsidies.
  - Simplicity, understandability, and public acceptability.
  - Practicability, metering and billing constraints.

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- Factors to consider:
  - Regulatory and statutory requirements.
  - Economics – cost based or not.
  - Gradualism – previous levels of rates
  - Physical constraints – firm or interruptible.
  - Revenue stability.

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- The existing rate structures for the various rate classes is the best source of information to assist in selecting rate structures.
  - Evaluate the performance of current structure:
    - Do rates provide revenue stability?
    - Do rates provide for recovery of revenue requirements for that class of service?
    - Are the rates perceived to be fair by the customers?

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Typical Bundled Sales Rates – Natural Gas

- There are a wide variety of rate structures to choose from – flat rates, step rates, declining block rates, demand rates.
- Michigan employs a two step structure
  - Customer Charge – Fixed monthly charge
  - Distribution Charge – Energy charge on each unit of sale.

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Typical Rate Design

- Results of Cost Allocation

Residential Class	$240,250,000
Small C&I	69,000,000
Large C&I	44,800,000
Interruptible Class	7,400,000
Revenue Requirements	$362,050,000

- Sample Rate Design for Large C&I

1,000 customers at $400/month =	$ 4,800,000
50,000,000 Mcf @ $0.80/Mcf =	40,000,000
Revenue Generated by Rate Design	$44,800,000

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